This PDF is a selection from a published volume from the National Bureau of Economic Research

Volume Title: The Structure of Wages: An International Comparison

Volume Author/Editor: Edward P. Lazear and Kathryn L. Shaw, editors

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-47050-4; 978-0-226-47050-4

Volume URL: http://www.nber.org/books/laze08-1

Conference Date:

Publication Date: January 2009

Chapter Title: Wage Structure in France, 1977-96

Chapter Author: Francis Kramarz, Sébastien Perez-Duarte

Chapter URL: http://www.nber.org/chapters/c2376

Chapter pages in book: (p. 401 - 418)

11

Wage Structure in France, 1977–96

Francis Kramarz and Sébastien Perez-Duarte

11.1 Introduction

The story of wages and mobility, both at the firm and at the worker level, is one that until recently could not have been told. In France, matched employer-employee data was collected since the middle of the 1970s, but only in the past few years has computer power, storage, and ease of use been enough to allow systematic study of the links between employee and firm characteristics. In the spirit of the other contributions to this book, we will sift the wage structure in France during the twenty years between 1976 and 1996 through the sieve of intra- and interfirm heterogeneity. Section 11.2 describes the data used, section 11.3 paints the picture of wage movements, while section 11.4 analyzes wage dispersion and variation through some sample statistics.

11.2 Description of the Data Used: The DADS

The *Déclaration Annuelles de Données Sociales* (DADS) is a longitudinal matched employer-employee data source collected by the *Institut National de la Statistique et des Etudes Economiques* (INSEE) and maintained in the *Division des Revenus/Exploitation des Fichiers Administratifs* at INSEE.

Francis Kramarz is the director of the Center for Research in Economics and Statistics (CREST) at the National Institute for Statistics and Economic Studies (INSEE). Sébastien Perez-Duarte was a researcher at INSEE/CREST when this chapter was prepared. He is currently an economist-statistician at the European Central Bank.

We gratefully acknowledge the irreplaceable help of the Cornell Restricted Access Data Center, without which we would have suffered through our journey across the data; and of John Abowd, whose contribution to the data used in this chapter, and to all the derivative work engendered by it, can never be overstated.

The data are based on a mandatory employer report of the gross earnings of each employee subject to French payroll taxes. The universe includes all statutory employed persons. Our analysis sample covers all individuals employed in French enterprises who were born in October of even-numbered years, with civil servants excluded. Our analysis sample runs from 1976 through 1996, with 1981, 1983, and 1990 excluded because the extracts from the master payroll records were not built for those years. The initial data set contained sixteen million observations. Each observation corresponds to a unique enterprise-individual-year combination. The observation includes an identifier that corresponds to the employee (called NNI in the following) and an identifier that corresponds to the enterprise (SIREN). For each observation, we have information on the number of days during the calendar year the individual worked in the establishment, as well as the full-time/part-time/intermittent/at-home work status of the employee. Each observation also includes, in addition to the variables listed in the preceding, the sex, month, year, and place of birth; occupation; total net nominal earnings during the year and annualized gross nominal earnings during the year for the individual; as well as the location and industry of the employing establishment. Nominal values were deflated by the consumer price index, and are written as thousands of 1980 French francs (FF).

11.2.1 Observation Selection, Variable Creation, and Imputation

An observation is identified by a combination of two identifiers, the firm ID and the person ID. The SIREN number has an internal structure that allows a check for coding errors. But the NNI number has no such internal control. Although 90 percent of current DADS information is filed by the responding firm using an electronic medium (tape or diskette), the situation in the 1980s was quite different. In that era, INSEE had to perform data entry by keypunch from paper forms. Entry errors in the NNI occurred (exchange of two digits of the NNI, error in one of the digits, etc.). This phenomenon is well known at INSEE but, despite many attempts, no general way of solving this problem was found. As a consequence, some observations have a NNI-year-SIREN combination such that no other observation has the same NNI. As a joint product, some NNI-SIREN combinations have a unique missing year. Consider now the case of a worker with observations in, say, 1978 and 1980 in the same enterprise (SIREN) but no observation for 1979. If true, this history would mean that the worker was employed until some date in 1978 (depending on the number of days worked, December 31 most likely) and also employed after some date in 1980 (depending on the number of days worked, January 1 most likely) in this firm but not employed at all during year 1979. This is very improbable, in particular because there is a layoff procedure in France in which workers may be recalled by their firms after some period of unemployment. Suggestions of D. Verger (head of the Division Revenus, in charge of the DADS at the beginning of the 1990s) led us to adopt the following solution.

Whenever an observation was missing in a given year while the same NNI-SIREN combination exists for the preceding and the following year, we created an observation for the missing year with the same NNI-SIREN combination. (This added 193,148 observations.) Earnings are computed as the geometric mean of the preceding and following wages (in real terms). All other variables are taken at their preceding year value.

Because of the 1982 and 1990 Census, the 1981, 1983, and 1990 DADS data were not available. We used the same principle as the one described in the preceding to impute missing observations. Hence, imputation was performed only for those individuals that were present in the same firm in 1980 and 1982 or 1982 and 1984 or 1989 and 1991. (This added 759,017 observations to the sample.) All variables were imputed as in the preceding.

11.2.2 Multiple Jobs

Until now, nothing in our procedure rules out multiple job holding. Multiple jobs are difficult to handle in our data because we only have information on the number of days worked in each NNI-year-SIREN combination. Hence, we do not know the starting and the ending date of the spell in that year (for all spells that last less than 360 days, the maximum). To be able to build spells of employment for each worker, we only kept those individuals who never had strictly more than three employers in any year. We computed the number of employers any worker had in a year. We kept in our analysis file those workers who had at most three different employers in each year. At this stage, our sample only contains workers who hold at most three simultaneous jobs in a given year. Then we computed the sum of all days worked in each year. If this number was strictly larger than 720 days for some year, that is, the worker necessarily had three simultaneous jobs at some point of this year, we deleted the individual from our sample.

We define a job spell as an uninterrupted period of employment for a given NNI in a given SIREN over, possibly, many years.

11.2.3 Beginning and End of Job Spells

Because workers can have at most three types of job spells in a year, the possible sequence of job spells are limited. This allows us to compute exactly the beginning and the ending dates of a job spell. First, we identified for each individual the starting and the end years of a job spell. Then we ordered these sequences. The different cases are the following:

When a job spell starts in year t but ends after December 31 of the same year, we compute the starting date within year t as $(360 - DP_t)/360$, where DP_t denotes the number of days worked in year t.

The end date within year t of a spell is computed symmetrically if the spell started before year t as $(DP_t - 360)/360$.

When a spell starts and ends the same year, and if there is no simultaneous job this year, the spell starts at the beginning of the year (January 1).

When a worker has multiple spells that all start and end the same year,

we assume that the sequence of job spells is organized as follows. As long as the sum of days worked in this year is less than or equal to 360, the job spells are put in sequence one after the other, the first one starting January 1. Any spell with a number of days worked, $DP_{1,t}$ such that $DP_{1,t} + DP_{k,t} > 360$ where $k = 2,3$ (the other two potential spells), is also placed January 1. This finishes when the three spells (maximum possible) have been coded.

If a job spell ends in year t but started at some previous date, any other job spell that took place the same year t will start at the end of this spell if the total number of days worked for these two spells is smaller or equal to 360 but starts January 1 otherwise. The third spell, if it exists, is placed after the first of the two spells for which the sum is smaller or equal to 360.

The symmetric principles apply whenever a spell starts in year t and ends after December 31 for all spells that took place in year t.

At the end of this procedure, whenever a worker held three jobs simultaneously (think of a worker with three spells in a given year that all last 200 days), all of his or her observations were deleted. Altogether, both procedures for finding workers holding three simultaneous jobs or more eliminated from the sample 2,223,859 observations that correspond to 115,637 workers.

11.2.4 Job Duration

Individuals fell into two categories with respect to the calculation of job duration: those for whom the first year of observation was in 1976 with 360 worked days in that year and those that appear in the sample after this date or had less than 360 days of work in 1976. For the first category, we estimated the expected length of the in-progress employment spell by regression analysis using a supplementary survey, the 1978 *Enquête sur la Structure des Salaires* (ESS; Salary Structure Survey). In this survey, respondent establishments provided information on seniority, occupation, date of birth, industry, and work location for a scientific sample of their employees. Using this information, Abowd, Kramarz, and Margolis (1999 estimated separate regressions for men and women that we use to predict seniority for the in-progress spells in 1976 with 360 days worked (all coefficients are reported in Abowd, Kramarz, and Margolis; see, in particular, the data appendix).

Finally, as in Abowd, Kramarz, and Margolis (1999), we eliminated observations for which the logarithm of the real annualized total compensation cost was more than five standard deviations away from its predicted value based on a linear regression model of this variable on sex, region, experience, and education (see once more the data appendix in Abowd, Kramarz, and Margolis).

Having done all these selections and imputations, the final data set that we use contains 13,770,082 observations, corresponding to 1,682,080 individuals and 515,557 firms. For international comparison purposes, only observations for full-time jobs were selected. This limits a potential bias

because the number of part-time jobs doubled between 1979 and 1996. The share of women in the labor force also increased, by more than 5 percentage points, so we could potentially find different results if we produced separate tables by gender.

The years initially selected were 1977, 1979, 1987, 1989, 1993, and 1996, since the sample period goes from 1976 to 1996. As described in the preceding, the years 1981, 1983 and 1990 are not available, and, unfortunately, there was a complete overhaul of the computerized programs of the DADS in 1993. This last change made 1993 and 1994 too special to be useable. Hence, we selected 1977, 1979, 1989, 1996, and only used 1987 when it was useful to compute ten-year-long differences.

11.2.5 The Effect of the Sampling Scheme on Our Statistics

Our data only includes workers born on October of even-numbered years. Combined with missing information on the year and month of birth for some observations, the data is constructed so that it represents exactly 1/25 of the total number of observations, and hence 1/25 of the number of workers.

This sample selection procedure leads to unbiased worker-dependent statistics and is perfectly appropriate for workercentric models (job changes, wages, work experience, seniority, etc.).

However, some *within-firm*, second-order statistics will be inconsistent, as firm size is fixed in the data. To see this, consider an economy where there are J firms of the same size N, the sampling is uniform, and the size of the firm is large enough that every firm has n sampled workers (the sampling ratio is thus n/N). All (log-) wages are drawn from the same $N(\mu,\sigma^2)$ distribution. This entails that within-firm mean wage follows a $N(\mu, \sigma^2/n)$ distribution. Average within-firm wage is thus $N(\mu, \sigma^2/nJ)$, so this statistic is consistent. The standard deviation of the within-firm mean wage is not consistent, however.

The within-firm mean wage is $X_j = (1/n)\Sigma_i X_{ij}$, and the variance of this within-firm mean wage is:

$$Y = \frac{1}{J}\sum_j X_j^2 - \left(\frac{1}{J}\sum_j X_j\right)^2.$$

Thus,

$$EY = E(X_j^2) - E\left[\left(\frac{1}{J}\sum_j X_j\right)^2\right] = \mu^2 + \frac{\sigma^2}{n} - \left(\mu^2 + \frac{\sigma^2}{nJ}\right) = \frac{J-1}{J}\,\frac{\sigma^2}{n}.$$

Hence, as the number of firms goes to infinity, the standard deviation of within-firm mean wage will converge to $\sigma/\sqrt{n}$ (recall, n is the firm size). In our case, the sampling ratio is 1/25, thus in this simplistic economy, the standard deviation of the within-firm average wage will be off by a factor of five (compare with figure I.3 in Lazear and Shaw's introduction in this volume, where France is 0.54 versus the average of the other countries at

0.15). Now consider the case where firms have different sizes (n_j), and wages are drawn from the same distribution as before. Then the standard deviation of the within-firm mean wage will be a pure reflection of the distribution of firm sizes. Finally, if firms have varying mean wages and different within-firm dispersions, the statistic will reflect a complex mixture of size, average pay structure, and firm dispersion. This happens in every case, with or without sampling.

By contrast, figure I.5 in Lazear and Shaw's introduction in this volume shows that the average of the standard deviation by firm is not very different in France, as the standard deviation is only affected in its variance by the sampling scheme. In this case, the within-firm variance is:

$$S_j = \frac{1}{n-1}\sum_i X_{ij}^2 - \frac{n}{n-1}\left(\frac{1}{n}\sum_i X_{ij}\right)^2,$$

thus $ES_j = \sigma^2$, and by the law of large numbers the mean of the standard deviation will converge to its true value of σ^2. Note, however, that the variance can only be computed when there are at least two observations for the given year; hence, our statistic will tend to overrepresent larger firms.

11.3 Wage Institutions in France: A Bird's-Eye View

11.3.1 The Minimum Wage

Since 1951, French industry has been subject to a national minimum wage (called the SMIC since the revisions to the relevant law in 1971) that is indexed to the rate of change in consumer prices and to the average blue-collar wage rate.[1]

Figures 11.1 and 11.2 depict the changes in the (real) minima over the sample period (with the minimum wage in the United States as a useful comparison). The French SMIC started its very sharp increase in the beginning of the 1970s. In the rest of the sample period, the French SMIC continued its increase, partly mandated by one-shot increases and partly by formulaic increases. Note, however, that minimum wage rates delivered to the worker do not present the firm's minimum labor costs. Indeed, the structure of payroll taxes that augment wages as a part of labor cost has changed in France. After a constant increase in payroll tax rates from the early 1970s, they dropped sharply in 1994 and even more so in the ensuing years (see Kramarz and Philippon 2001) as a part of an explicit program to lower total labor costs for workers at the minimum wage.

11.3.2 Wage Bargaining: The French Way

During the sample period, the French labor market institutions were also characterized by important changes in the bargaining institutions and

1. This section and the following borrow heavily from work by Abowd et al. (2005).

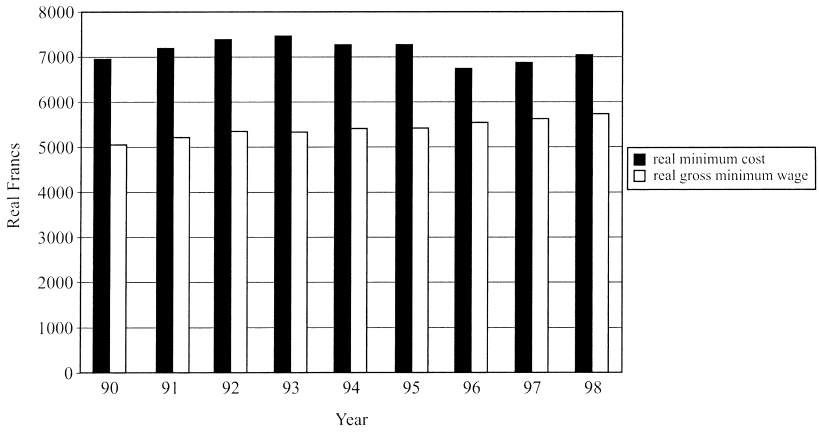

Fig. 11.1 Changes in the real minimum cost
Source: Kramarz and Philippon (2001).

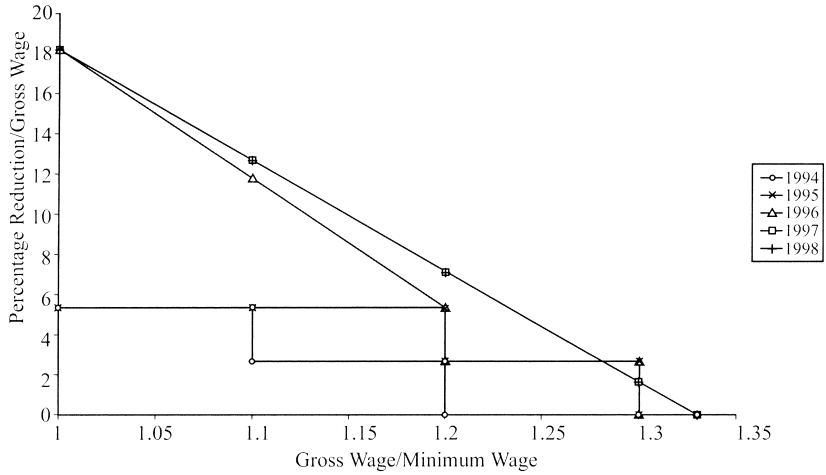

Fig. 11.2 Changes in the real minimum cost and the real minimum wage. Reduction of employer-paid payroll taxes
Source: Kramarz and Philippon (2001).

environment. In the 1970s, centralized collective bargaining agreements (*conventions collectives de branches*) were the basic elements of the negotiation process in France. The different industrial sectors had collective agreements that were negotiated by groups of unions and employer associations. These agreements were binding on the negotiating parties. The complete agreement was then typically extended to cover the entire industry (or region) by the Ministry of Labor and was then made binding on workers and firms that were not party to the original negotiation (see Mar-

golis 1994). More than 95 percent of the workforce was covered by these collective bargaining agreements at the end of the 1980s, while union membership was approximately 10 percent. The collective agreements specified a set of minimum wages and wage progressions for the occupational categories covered by the negotiations (sometimes called a wage grid). But, beginning in 1982, the *lois Auroux* (a set of revisions to the body of labor law named after the Minister of Labor at the time) required firms with at least fifty employees to negotiate firm-level collective agreements (*accords d'entreprise*). Although firms were explicitly not obligated to conclude an agreement, 65 percent of the workforce were employed at establishments or businesses where firm-level negotiations occurred either through the union delegates or some other worker representative. Among this 65 percent of the workforce, only three-quarters of the workers ended up with an agreement as a result of these negotiations. Finally, the percentage of the workforce covered by some establishment or firm-level agreement on wages is approximately 40 percent in 1992. The law required that the firm-level agreements could only improve the conditions stated in the industrial agreement so that, over time, the firm-level agreements have become more important for wage determination than the industry agreements. Although more than 90 percent of French workers are covered by industrial agreements throughout our analysis period (1976 to 1996), firm-level negotiations outpaced renegotiations of industrywide agreements in most industries. The regular increases in the national minimum wage (in particular those driven by the indexation to the average blue-collar wage rate) resulted in the lowest categories on the collective pay scales in most industry contracts for most occupations being below the national minimum by the beginning of the 1990s. When this occurs, it is the national minimum wage, and not the collectively bargained wage, that binds.

11.3.3 Product Markets

Our sample period for France is not one of intense product market competition. Even though France, pushed by European institutions, started in the 1990s to deregulate some industries, the process is far from complete. During our sample period, near-monopolies operated in many industries. Air France (airlines), Seita (cigarettes), Electricité de France (energy), and Gaz de France (energy) are all examples of firms in which the State has a majority equity stake and there are no local competitors (even though France imports cigarettes and allows foreign airlines to land in France). Entry into these industries was, and still is, heavily regulated. Surprisingly, it is also the case in many other apparently competitive industries, such as the retail trade, that entry regulations loomed and are still very important (see Bertrand and Kramarz [2002] for the detrimental effect of the *loi Royer* on employment in the retail trade). Djankov et al. (2000) have also shown that entry regulations, as measured by requirements to starting a new busi-

ness in France, are common, time-consuming, and costly. This startup process takes sixty-six days and sixteen different legal and administrative steps in France and only seven days and four steps in the United States.

11.3.4 Macroeconomic Conditions

During our sample period, the economy has lived through several cycles, though the labor market has not. The first years in our sample follow the end of *Trente Glorieuses*, the thirty years of golden prosperity after World War II. Unemployment increased steadily from around 3 percent in the beginning of the 1970s to 10 percent in 1985. The years between 1987 and 1989 are two years where the economy returned to growth years (incidentally, 1989 and 1990 are exceptionally good wine years), and the only ones in which unemployment declined significantly. Growth then drastically slowed and unemployment soon increased, reaching 12 percent in 1996, the last year of our sample.

11.4 The Heterogeneity of Wages

We will start first by describing some sample wage statistics before delving into the depths of the distributions.

11.4.1 Levels

The central feature of the wages is that in real terms wages increase by around 0.8 percent per year. The increase is higher for the firm average wage than for the worker average wage. Only when the unemployment rate decreased by a bit more than 1 percent between 1987 and 1989 did real wages fall. (See figure 11.3.)

Wage increases were not shared equally between different categories of workers. Only from 1989 to 1996 did wages for young workers (twenty-five to thirty) increase, whereas for workers aged between forty-five and fifty, the increase was high at around 1 percent per year (except for the 1987 to 1989 period). Youth unemployment was an increasing problem during the whole period and may have held entry wages down during that period. (See figure 11.4)

This increase in the real wage is also not constant across the wages. The wages on the middle half of the distribution of wages increased by 0.7 percent by year, on average, though the average wage increased by 0.8 percent. The difference is explained by the higher increase in the lower wages, 1.0 percent per year. In figure 11.5 we plot the increase in the log wage between 1977 and several years, at each percentile of the distribution. Three results are striking between 1977 and 1996: for wages between percentiles 20 percent and 95 percent: the increase in wages is constant, wage increases were very high for the bottom part of the distribution, while top wages only received a below average increase. Wages were compressed from below, while

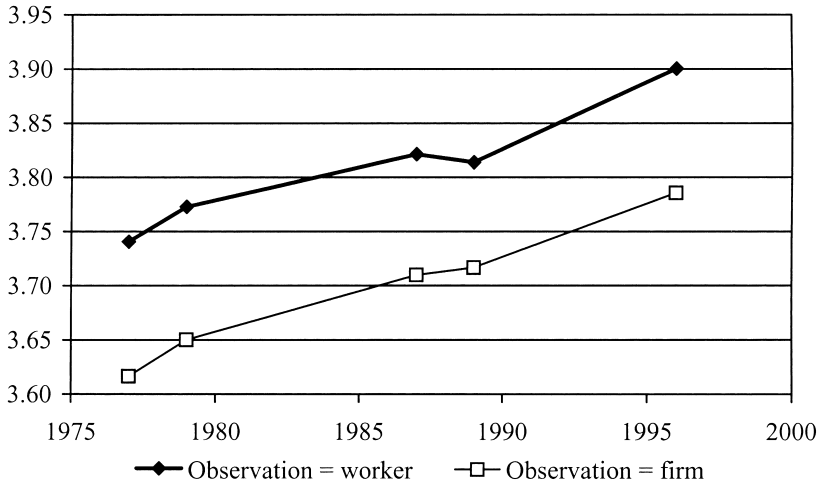

Fig. 11.3 Average log wage across workers or firms

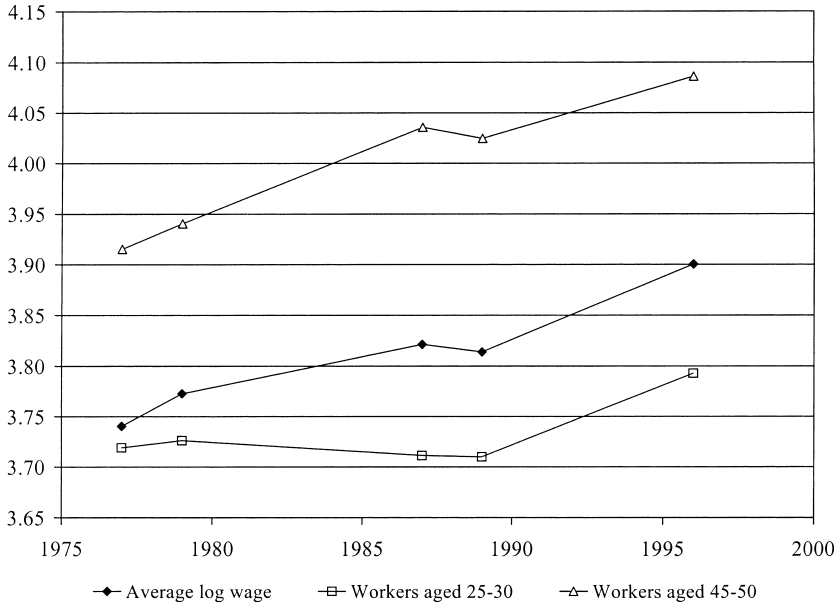

Fig. 11.4 Average log wage and age

most of the rest of the distribution is unaffected: the minimum wage was increased in 1991 and 1992, while payroll taxes were reduced starting in 1994. The firms had clear incentives to compress the wages around the minimum wage so as to benefit from the threshold-based exemptions. Because of this reduction in labor cost, turnover was also lower for low-wage workers.

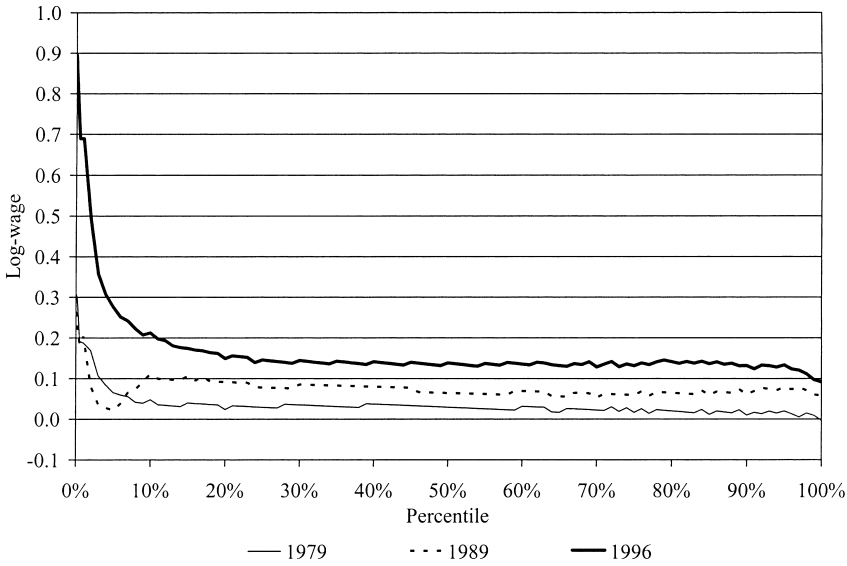

Fig. 11.5 Percentile-based increase in wages. Shift in the distribution of log wages, since 1977 up to year 1996

11.4.2 Variance

Another striking feature in the data is the stability of the wage distribution within firms for most of our sample period. Proof of this is found in the distribution of the coefficient of variation (CV) of wages (figure 11.6). Between 1979 and 1989, the CV of log wages was constant at around 9.5 percent, after a small decline at the beginning of the period. The real change occurs between 1989 and 1996, where the CV decreased to 8.1 percent. The CV of wages (as opposed to log wages) also experiences this stability followed by a strong decrease.

At the end of our sample period, between 1993 and 1996, the large decrease in payroll taxes, concentrated on the lower end of the distribution of wages (up to 1.33 of the minimum wage), had a very sizeable impact on the labor market. Kramarz and Philippon (2001) estimate that the decrease in payroll taxes had a positive impact on the rate of firing of low-wage workers. This cannot be confirmed, however, through the turnover statistics: the exit rate is constant between 1987 and 1996. The concentration of wages, however, was altered, as we saw in the preceding.

11.4.3 Earnings Mobility

Buchinsky et al. (2003), while studying earnings mobility with a variety of different statistics, find that between 1971 and 1977 mobility strongly declined in France, and while the mobility stayed very low, no clear pattern could be seen afterward. In our data, the distribution of wage changes is re-

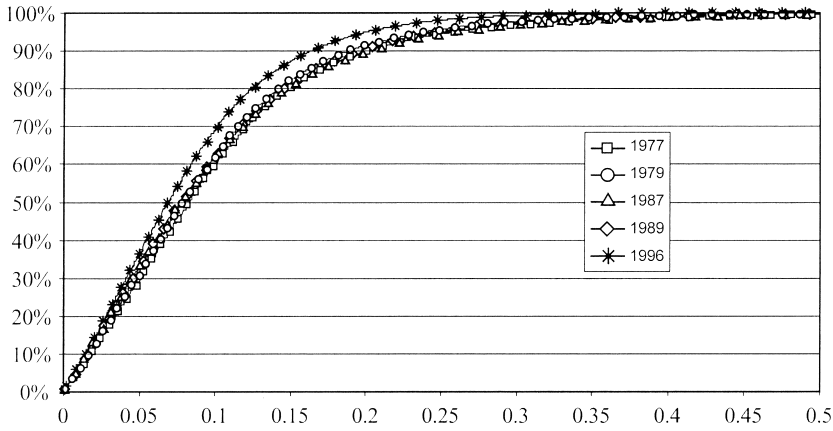

Fig. 11.6 Within-firm wage variance. Cumulative distribution of coefficient of variation, log wage within firm

markably stable throughout our entire sample period, as can be surmised from figure 11.7.

Furthermore, the distribution of wage changes for movers and stayers (figure 11.8) is also very stable during all our sample period: wage change for movers is much more dispersed, both in the upper part of the distribution and in the bottom part.

11.4.4 Turnover

The relationship between job change and wage is studied by Abowd, Kramarz, and Roux (2006) in a model of joint mobility and wages by firm; 30 percent of the variance is explained by the axis high-turnover–low wage–high returns to seniority versus low-turnover–high wage–low returns to seniority.

Correlation between the average wage in the firm and exit and entry rates is consistently negative throughout the years (see table 11.1).

Turnover is mainly procyclical in France (Dares 2003). However, the interaction of different effects renders interpretation difficult. Abowd, Corbel, and Kramarz (1999, 182), with a different data set, conclude that:

> Adjusted establishment growth rates are procyclical (negatively related to changes in the unemployment ratio) with an elasticity of –0.14 (0.02 robust standard error). The employment entry rate is weakly countercyclical with an elasticity of 0.09 (0.04). The employment exit rate is strongly countercyclical with an elasticity of 0.23 (0.06) and the involuntary exit rate displays essentially identical countercyclicality. The employment quit rate is weakly countercyclical with an elasticity of 0.02 (0.004). Finally, the retirement rate is procyclical with an elasticity of –0.22 (0.06).

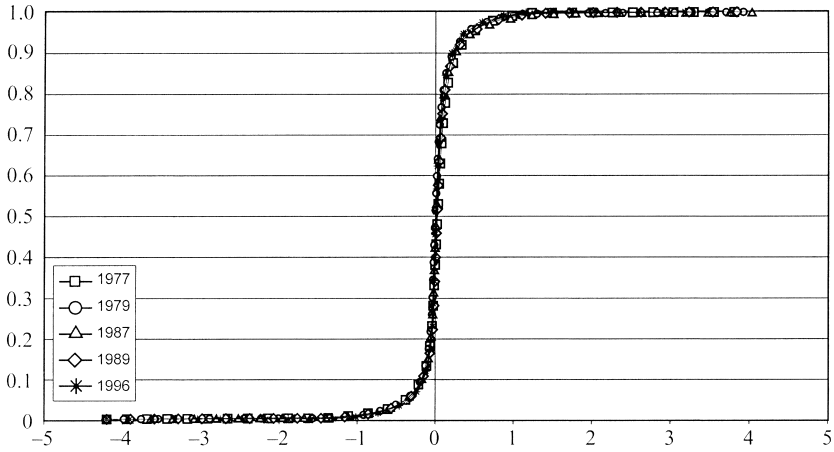

Fig. 11.7 Log wage change. Cumulative distribution of wage change (observation = worker)

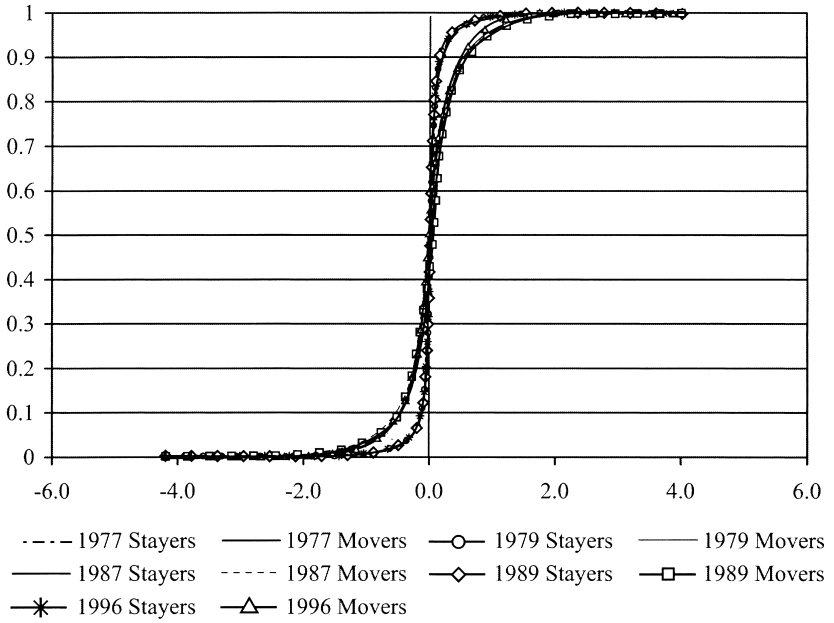

Fig. 11.8 Wage change for movers and for stayers

Table 11.1 Correlation at the firm level between average wage and exit and entry rates

	1977	1979	1987	1989	1993	1996
Exit rate	–0.12	–0.14	–0.11	–0.13	–0.10	–0.05
Entry rate	–0.15	–0.17	–0.16	–0.16	–0.11	–0.12

In our data, turnover is remarkably higher in 1977 than for all other years in our sample period. For example, for our sample of large firms, the entry rate (the proportion of new workers in each firm) was above 30 percent in 1977 but was at or below 26 percent for all the other years in our sample.

The entry and exit rates in 1977 are high throughout the entire distribution, as can be seen in figures 11.9 to 11.12. This year excepted, the

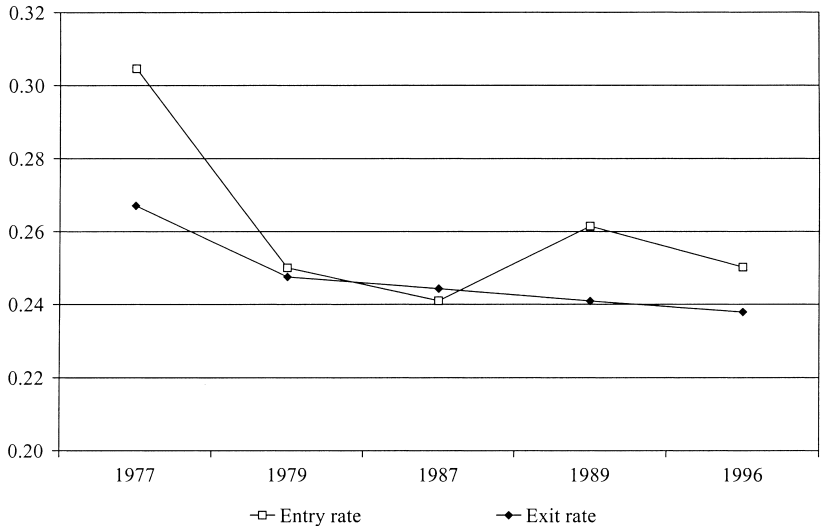

Fig. 11.9 Average turnover

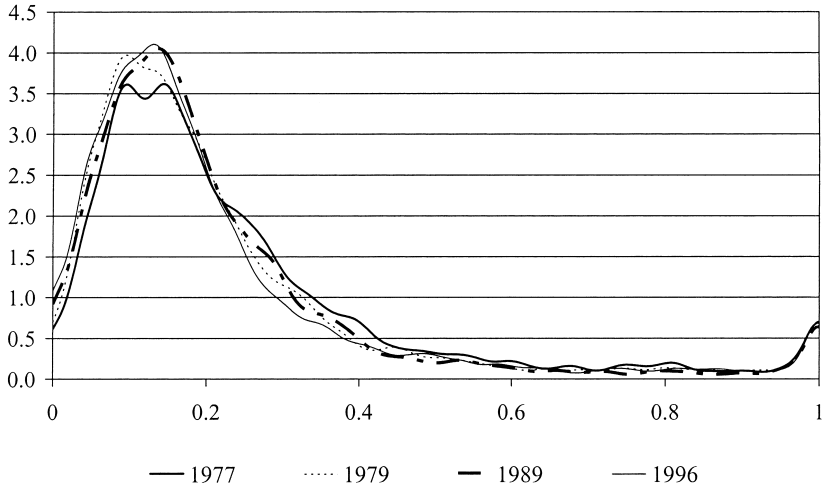

Fig. 11.10 Distribution of average firm exit rates

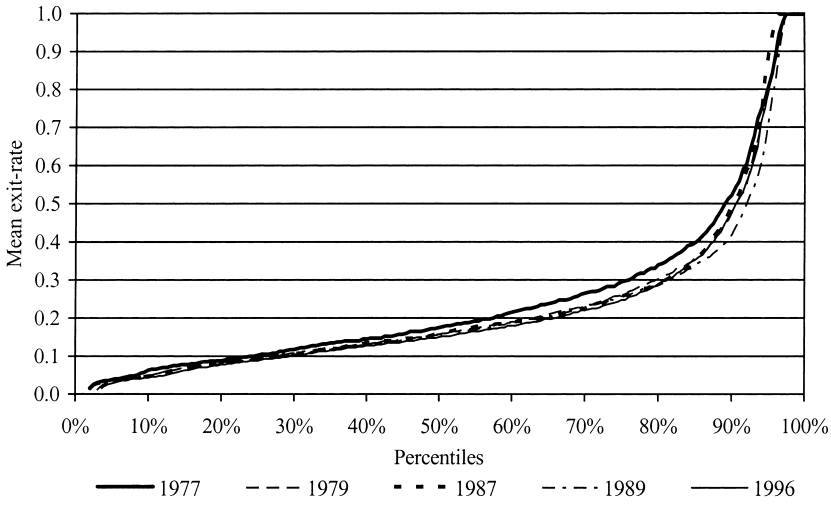

Fig. 11.11 Distribution of average firm exit rates

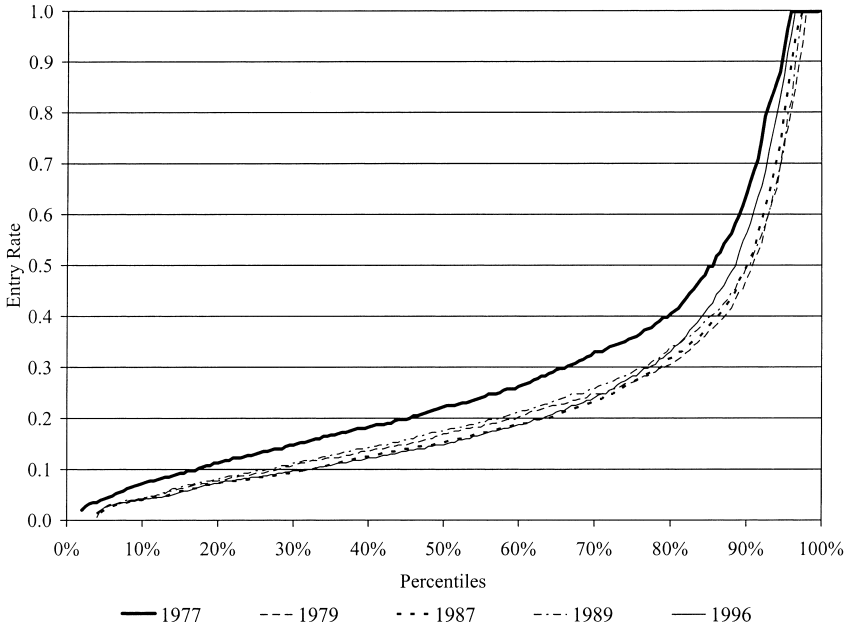

Fig. 11.12 Distribution of average firm entry rates

distribution of exit and entry rates is very similar from one year to the other. We can observe that a positive number of firms exhibit exit rates of one (the firm is destroyed). On average, 3 percent of the firms close every year.

Appendix

Table 11A.1 Macroeconomic conditions

Year	Unemployment rate	GDP (%)	GDP 5 years (%)	Percentage of part-time workers	Percentage of women in labor force
1970	2.5	5.5			35.7
1971	2.7	4.8		5.8	36.1
1972	2.8	4.4		5.8	36.5
1973	2.7	5.4		5.9	36.8
1974	2.8	3.1	4.6	5.9	37.0
1975	4.1	–0.3	3.5	8.1	37.4
1976	4.5	4.2	3.4	8.1	38.0
1977	5.0	3.2	3.1	8.7	38.6
1978	5.3	3.4	2.7	7.9	39.0
1979	5.9	3.3	2.8	8.2	39.5
1980	6.3	1.6	3.1	8.3	39.9
1981	7.4	1.2	2.5	8.4	40.3
1982	8.1	2.6	2.4	9.2	40.8
1983	8.4	1.5	2.1	9.7	41.3
1984	9.8	1.6	1.7	10.3	41.8
1985	10.2	1.5	1.7	11.0	42.2
1986	10.4	2.4	1.9	11.8	42.5
1987	10.5	2.5	1.9	11.8	43.0
1988	10.0	4.6	2.5	12.1	43.1
1989	9.4	4.2	3.0	12.1	43.3
1990	8.9	2.6	3.3	12.0	43.4
1991	9.3	1.0	3.0	12.0	43.7
1992	10.2	1.5	2.8	12.7	44.2
1993	11.5	–0.9	1.7	13.9	44.5
1994	12.1	2.1	1.2	14.8	44.9
1995	11.4	1.7	1.1	15.6	45.0
1996	12.0	1.1	1.1	16.0	45.2
1997	12.1	1.9	1.2	16.8	45.4
1998	11.5	3.4	2.0	17.2	45.6
1999	10.8	3.2	2.3	17.3	45.7
2000	9.5	3.8	2.7	16.9	45.8
2001	8.7	2.1	2.9	16.4	45.9
2002	9.0	1.2	2.7	16.2	46.1

Source: Unemployment rate is taken from the International Labor Organization.

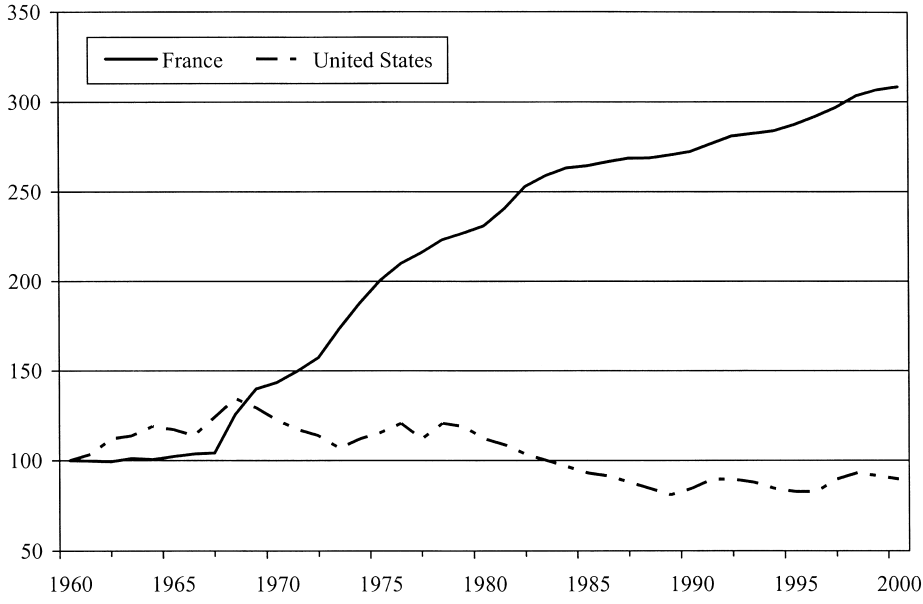

Fig. 11A.1 Real minimum wage in France and in the United States (=100 in 1960)

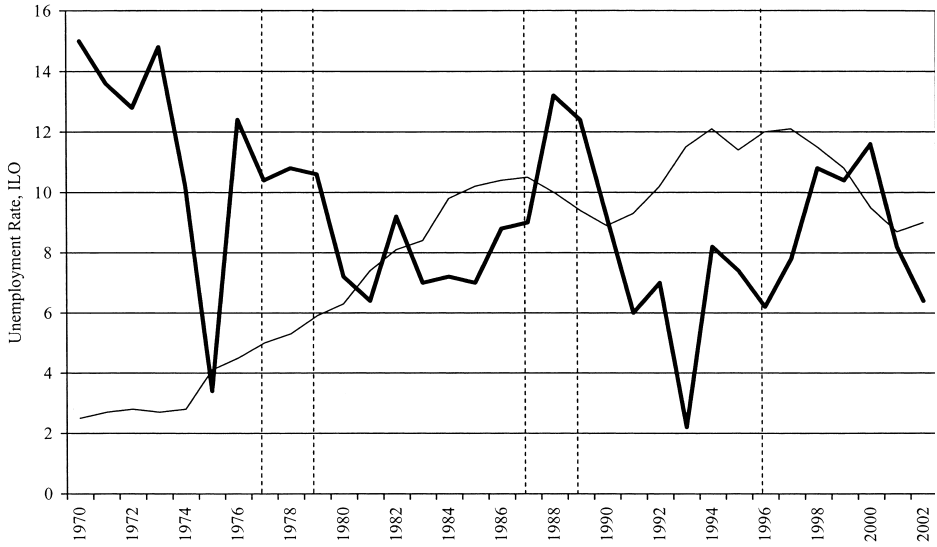

Fig. 11A.2 Macroeconomic conditions in France
Note: Dashed lines represent our sample years.

References

Abowd, J. M., P. Corbel, and F. Kramarz. 1999. The entry and exit of workers and the growth of employment: An analysis of French establishments. *Review of Economics and Statistics* 81 (2): 170–87.

Abowd, J. M., F. Kramarz, P. Lengermann, and S. Roux. 2005. Persistent inter-industry wage differences: Rent sharing and opportunity costs. Center for Research in Economics and Statistics (CREST), Working Paper.

Abowd, J. M., F. Kramarz, and D. N. Margolis. 1999. High wage workers and high wage firms. *Econometrica* 67:251–334.

Abowd, J. M., F. Kramarz, and S. Roux. 2006. Wages, mobility, and firm performance: Advantages and insights from using matched worker-firm data. *Economic Journal* 116:245–85.

Bertrand, M., and F. Kramarz. 2002. Does entry regulation hinder job creation? Evidence from the French retail industry. *Quarterly Journal of Economics* 117 (4): 1369–1414.

Buchinsky, M., G. Fields, D. Fougère, and F. Kramarz. 2003. Francs or ranks? Earnings mobility in France, 1967–1999. CEPR Discussion Paper no. 3937. London: Centre for Economic Policy Research.

Dares. 2003. *Depuis 10 ans, le turnover est en phase avec l'activité économique* (For the last 10 years, turnover has been synchronized with economic activity). Premières Synthèses no. 38.1. Paris: French Ministry of Labor.

Djankov, S., R. La Porta, F. Lopez-de-Silanes, and A. Schleifer. 2000. The regulation of entry. NBER Working Paper no. 7892. Cambridge, MA: National Bureau of Economic Research.

Kramarz, F., and T. Philippon. 2001. The impact of differential payroll tax subsidies on minimum wage employment. *Journal of Public Economics* 82:115–46.

Margolis, D. N. 1994. Government extension of collective bargaining agreements. Center for Research in Economics and Statistics (CREST), Unpublished Manuscript.